SEQUENCE LISTING

<110> Saxon, Andrew
      Zhang, Ke

<120> IMMUNOGLOBULIN CLASS SWITCH
  RECOMBINATION

<130> UC053.001A

<140> 09/770,169
<141> 2001-01-26

<160> 108

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 1
ttgtccaggc cggcagcatc accggag   27

<210> 2
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 2
actcctcagt gggatggcct ctacactccc t   31

<210> 3
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 3
ctagaagctt tattgcggta gt   22

<210> 4
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> Artificial Sequence = synthetic peptide

<400> 4
cgacaagctt agtttctatt ggtc   24

<210> 5
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 5
actcagatgg ctaaactgag cctaagct   28

<210> 6
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 6
atgtttcagg ttcagggggga ggtgtg   26

<210> 7
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 7
gagcctagac taacaggctg aact   24

<210> 8
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 8
actcctcagt gggatggact cacactccct   30

<210> 9
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 9
aagctttatt gcggtagttt atcacagt   28

<210> 10
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 10
ccaagatctc caggcaggca gaagtat   27

<210> 11
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 11
cccaactagt cttagcctga tacaacctg   29

<210> 12
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 12
ttgtccaggc catcagcatc actggag   27

<210> 13
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 13
agctgtccag gaacccgaca gggag   25

<210> 14
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 14
gttgatagtc cctggggtgt a   21

```
<210> 15
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 15
tgtcccttag aggacaggtg gccaa                                        25


<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 16
tctagacaag gggacctgct catt                                        24


<210> 17
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 17
ttatcccagc agaactcagt ttaaatcac                                   29


<210> 18
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence = synthetic peptide

<400> 18
gcccagttca gttaacctca ac                                          22


<210> 19
<211> 40
<212> DNA
<213> Homo sapiens

<400> 19
tgggctgagc tgggctgggc tgggctgggc tgagcgggtc                       40


<210> 20
<211> 40
<212> DNA
<213> Homo sapiens
```

<400> 20
tgggctgagc tgggctggtg gaaggcagga cgagcagggg   40

<210> 21
<211> 39
<212> DNA
<213> Homo sapiens

<400> 21
cagccacagg tgagcaggcc gtgagcagac gagcaggga   39

<210> 22
<211> 40
<212> DNA
<213> Homo sapiens

<400> 22
ctaacaggct gaactgggct gagctgagct gaactgggct   40

<210> 23
<211> 40
<212> DNA
<213> Homo sapiens

<400> 23
ctaacaggct gaactgggct ggcaggagct gggtagttgc   40

<210> 24
<211> 40
<212> DNA
<213> Homo sapiens

<400> 24
tcactcagct cctagatttt ggcaggagct gggtagttgc   40

<210> 25
<211> 40
<212> DNA
<213> Homo sapiens

<400> 25
ttgaactggg ttgagctgag ctgagctgag ctgggctaag   40

<210> 26
<211> 40
<212> DNA
<213> Homo sapiens

<400> 26
ttgaactggg ttgagctgag cagagcagag gccactgagg   40

<210> 27
<211> 40
<212> DNA
<213> Homo sapiens

<400> 27
cgttcacgga gctgacccag cagagcagag gccactgagg   40

<210> 28
<211> 39
<212> DNA
<213> Homo sapiens

<400> 28
tgggctgggc tgagcggtct agcgggctga gctgagctg   39

<210> 29
<211> 40
<212> DNA
<213> Homo sapiens

<400> 29
tgggctgggc tgagcgggtc agcctcctgg tgccgggaag   40

<210> 30
<211> 40
<212> DNA
<213> Homo sapiens

<400> 30
ggctggtgaa agtgcagtgc agcctcctgg tgccaggaag   40

<210> 31
<211> 40
<212> DNA
<213> Homo sapiens

<400> 31
agggagctga cccagcagag cagaggccac tgaggagctg   40

<210> 32
<211> 40
<212> DNA
<213> Homo sapiens

<400> 32
agggagctga cccagcagag ctgagcgggg ccgagcgggg   40

<210> 33
<211> 39
<212> DNA
<213> Homo sapiens

<400> 33
ctaggctggg ctgggctggg ctgagcgggg ctgagcggg   39

<210> 34
<211> 40
<212> DNA
<213> Homo sapiens

<400> 34

```
caggggaggc acaggggcta ggctcagagc cacctgatgg                    40

<210> 35
<211> 40
<212> DNA
<213> Homo sapiens

<400> 35
caggggaggc acaggggcta ggacctggac tgggctgagc                    40

<210> 36
<211> 40
<212> DNA
<213> Homo sapiens

<400> 36
tggtttgggc tgagttgagc tgacctggac tgggctgagc                    40

<210> 37
<211> 40
<212> DNA
<213> Homo sapiens

<400> 37
caggagggtg gaagccaagg agcccagagg cagaggcagg                    40

<210> 38
<211> 40
<212> DNA
<213> Homo sapiens

<400> 38
caggagggtg gaagccaagg tgaactaggg tgagctgggc                    40

<210> 39
<211> 40
<212> DNA
<213> Homo sapiens

<400> 39
tgggctgggc tgagctaagc tgaactaggg tgagctgggc                    40

<210> 40
<211> 40
<212> DNA
<213> Homo sapiens

<400> 40
tccagggagg cccagaaagg cccagagtgc agcaggcctg                    40

<210> 41
<211> 40
<212> DNA
<213> Homo sapiens

<400> 41
tccagggagg cccagaaagg aacctgggct gggctgagct                    40
```

```
<210> 42
<211> 40
<212> DNA
<213> Homo sapiens

<400> 42
agccgaggct gggctgggct aacctgggct gggctgagct          40

<210> 43
<211> 40
<212> DNA
<213> Homo sapiens

<400> 43
gctgggctgg gctgagctgg gctgagctgg gctgagcaag          40

<210> 44
<211> 40
<212> DNA
<213> Homo sapiens

<400> 44
gctgggctga gctgagctgg ggccccacca aattccagct          40

<210> 45
<211> 40
<212> DNA
<213> Homo sapiens

<400> 45
tcatgaagaa aggggccgga agccccacca aattccagct          40

<210> 46
<211> 40
<212> DNA
<213> Homo sapiens

<400> 46
tgagctgagc tgggctgggc tgagctgggc tgggctgggc          40

<210> 47
<211> 40
<212> DNA
<213> Homo sapiens

<400> 47
tgagctgagc tgggctgggc ttcgtccccc gcctcctgga          40

<210> 48
<211> 40
<212> DNA
<213> Homo sapiens

<400> 48
tcgttcccag gcacctagtc atcgtccccc gcctcctgga          40
```

<210> 49
<211> 50
<212> DNA
<213> Homo sapiens

<400> 49
tgggctgagc gggtctgagc ggggctgagc tgagctgagg ctgggctggg   50

<210> 50
<211> 50
<212> DNA
<213> Homo sapiens

<400> 50
tgggctgagc gggtctgagc cgggcagctg gactgcgctg ggcttggatt   50

<210> 51
<211> 50
<212> DNA
<213> Homo sapiens

<400> 51
acctgagatg gacagggtta taagaagctg gactgcgctg ggcttggatt   50

<210> 52
<211> 50
<212> DNA
<213> Homo sapiens

<400> 52
ctgggctaag ttgcaccagg tgagctgagc tgagctgggc ttggctgcac   50

<210> 53
<211> 50
<212> DNA
<213> Homo sapiens

<400> 53
ctgggctaag ttgcaccagg tgagctggga tgagctgggc tgggctgaac   50

<210> 54
<211> 50
<212> DNA
<213> Homo sapiens

<400> 54
tgggctgggg tgatctgaat ttagctggga tgagctgggc tgggctgaac   50

<210> 55
<211> 50
<212> DNA
<213> Homo sapiens

<400> 55
tgggcttggc tgcactaagc tgggctgagc tgggcagggc tgggctgagc   50

<210> 56

<211> 50
<212> DNA
<213> Homo sapiens

<400> 56
tgggcttggc tgcactaagc tgggctgagc tcaactgagt tcacatgggc   50

<210> 57
<211> 50
<212> DNA
<213> Homo sapiens

<400> 57
ttaactgaac tgggctgacc tgggctgagc tcaactgagt tcacatgggc   50

<210> 58
<211> 50
<212> DNA
<213> Homo sapiens

<400> 58
gggtctgagc ggggcagctg gactgagctg ggctgagctg agctgggctg   50

<210> 59
<211> 50
<212> DNA
<213> Homo sapiens

<400> 59
gggtctgagc ggggcagctg gactgacctg ggctgagctg gacagacctg   50

<210> 60
<211> 50
<212> DNA
<213> Homo sapiens

<400> 60
gccgggcctg agctgtgatt ggaagacctg ggctgagctg gacagacctg   50

<210> 61
<211> 50
<212> DNA
<213> Homo sapiens

<400> 61
gcagctggac tgagctgggc tgagctgagc tgggctgagc tgggctgagc   50

<210> 62
<211> 50
<212> DNA
<213> Homo sapiens

<400> 62
gcagctggac tgagctgggc tgagctgggc tgggtcaggt tgaggttaac   50

<210> 63
<211> 50

<212> DNA
<213> Homo sapiens

<400> 63
tcagctgaga tatgctaata tgggctgggc tgggtcaggt tgaggttaac   50

<210> 64
<211> 50
<212> DNA
<213> Homo sapiens

<400> 64
gggctgagct gagctgggct gggctgagct gggctgggct gggctgggct   50

<210> 65
<211> 50
<212> DNA
<213> Homo sapiens

<400> 65
gggctgagct gagctgggct gggctgggca actggactga ggtggatgga   50

<210> 66
<211> 50
<212> DNA
<213> Homo sapiens

<400> 66
tcctaaactg ggtttggctg ggctgggcca actggactga ggtggatgga   50

<210> 67
<211> 50
<212> DNA
<213> Homo sapiens

<400> 67
agctgggctg agcaagctag gctgactggg ctgagctgag ctgggctgag   50

<210> 68
<211> 50
<212> DNA
<213> Homo sapiens

<400> 68
agctgggctg agcaagctag gctgagctgg gctgagctag gttagactgg   50

<210> 69
<211> 50
<212> DNA
<213> Homo sapiens

<400> 69
gggttggtct ctcgggttca gctgggctgg gctgagctag gttagactgg   50

<210> 70
<211> 50
<212> DNA

<213> Homo sapiens

<400> 70
ggactgagct gggctgagct gagctgggct gagctgggct gagcaaggct   50

<210> 71
<211> 50
<212> DNA
<213> Homo sapiens

<400> 71
ggactgagct gggctgagct gggctgcctg gcctgggcct aaactgggtt   50

<210> 72
<211> 50
<212> DNA
<213> Homo sapiens

<400> 72
aactgagttc acatgggctg ggctggcctg gcctgggcct aaactgggtt   50

<210> 73
<211> 50
<212> DNA
<213> Homo sapiens

<400> 73
gcagggctgg gctgagctga gctgggctgg gctgagctgg gctgggctgg   50

<210> 74
<211> 50
<212> DNA
<213> Homo sapiens

<400> 74
gcagggctgg gctgagctga gctgggctga gctaaatggg attgagctga   50

<210> 75
<211> 50
<212> DNA
<213> Homo sapiens

<400> 75
ttagctggtt gggctgagta actgggctga gctaaatggg attgagctga   50

<210> 76
<211> 46
<212> DNA
<213> Homo sapiens

<400> 76
cggggctgag cgggctgagc tgagctaggc tgggctgagc ggggct   46

<210> 77
<211> 49
<212> DNA
<213> Homo sapiens

<400> 77
ctggggctga gctggggctg agctgcctgg ccaggcctga gctgtgatt   49

<210> 78
<211> 49
<212> DNA
<213> Homo sapiens

<400> 78
ggtggatgga gctgggctga gctggcctgg ccgggcctga gctgtgatt   49

<210> 79
<211> 50
<212> DNA
<213> Homo sapiens

<400> 79
actaacaggc tgaactgggc tgagctgagc tgaactgggc tgagttgaac   50

<210> 80
<211> 50
<212> DNA
<213> Homo sapiens

<400> 80
actaacaggc tgaactgggc tgagctgggt caggttgagg ttaactgaac   50

<210> 81
<211> 50
<212> DNA
<213> Homo sapiens

<400> 81
tgagatatgc taatatgggc tgggctgggt caggttgagg ttaactgaac   50

<210> 82
<211> 50
<212> DNA
<213> Homo sapiens

<400> 82
ccaggtgagc tgagctgagc tgggcttggc tgcactaagc tgggctgagc   50

<210> 83
<211> 50
<212> DNA
<213> Homo sapiens

<400> 83
ccaggtgagc tgagctgggc tgggctgagc tgggcttgga ttattgaacc   50

<210> 84
<211> 50
<212> DNA
<213> Homo sapiens

```
<400> 84
tggacagggt tataagaagc tggactgagc tgggcttgga ttattgaacc          50


<210> 85
<211> 50
<212> DNA
<213> Homo sapiens


<400> 85
ttggctgcac taagctgggc tgagctgggc agggctgggc tgagctgagc          50


<210> 86
<211> 50
<212> DNA
<213> Homo sapiens


<400> 86
ttggctgcac taagctgggc tgagctgggc ttggattatt gaaccgaatt          50


<210> 87
<211> 50
<212> DNA
<213> Homo sapiens


<400> 87
agggttataa gaagctggac tgagctgggc ttggattatt gaaccgaatt          50


<210> 88
<211> 50
<212> DNA
<213> Homo sapiens


<400> 88
gcaccaggtg agctgagctg agctgggctt ggctgcacta agctgggctg          50


<210> 89
<211> 50
<212> DNA
<213> Homo sapiens


<400> 89
gcaccaggtg agctgagctg agctgggctt ggattattga accgaattgg          50


<210> 90
<211> 50
<212> DNA
<213> Homo sapiens


<400> 90
ggttataaga agctggactg agctgggctt ggattattga accgaattgg          50


<210> 91
<211> 50
<212> DNA
<213> Homo sapiens


<400> 91
```

tgcaccaggt gagctgagct gagctgggct tggctgcact aagctgggct   50

<210> 92
<211> 50
<212> DNA
<213> Homo sapiens

<400> 92
tgcaccaggt gagctgagct tggaagcgtc gcctggccag gcctagagct   50

<210> 93
<211> 49
<212> DNA
<213> Homo sapiens

<400> 93
gactgaggtg gatggagctg ggctgagctg gcctggccgg gcctgagct   49

<210> 94
<211> 50
<212> DNA
<213> Homo sapiens

<400> 94
gctgagttga actgggttga gctgagctga gctgagctgg gctaagttgc   50

<210> 95
<211> 50
<212> DNA
<213> Homo sapiens

<400> 95
gctgagttgg actgggttga gctgaacaga cctgagccaa gcttagctag   50

<210> 96
<211> 50
<212> DNA
<213> Homo sapiens

<400> 96
gattggaaga cctgggctga gctggacaga cctgagccaa gcttagctag   50

<210> 97
<211> 50
<212> DNA
<213> Homo sapiens

<400> 97
gcaccaggtg agctgagctg agctgggctt ggctgcacta agctgggctg   50

<210> 98
<211> 50
<212> DNA
<213> Homo sapiens

<400> 98
gcaccaggtg agctgagctg agctgggctt ggattattga accgaattgg   50

<210> 99
<211> 50
<212> DNA
<213> Homo sapiens

<400> 99
ggttataaga agctggactg agctgggctt ggattattga accgaattgg   50

<210> 100
<211> 50
<212> DNA
<213> Homo sapiens

<400> 100
acaggctgaa ctgggctgag ctgagctgaa ctgggctgag ttgaactggg   50

<210> 101
<211> 50
<212> DNA
<213> Homo sapiens

<400> 101
acaggctgaa ctgggctgag ctgagcttgg attattgaac cgaattgggt   50

<210> 102
<211> 50
<212> DNA
<213> Homo sapiens

<400> 102
ttataagaag ctggactgag ctgggcttgg attattgaac cgaattgggt   50

<210> 103
<211> 50
<212> DNA
<213> Homo sapiens

<400> 103
actaacaggc tgaactgggc tgagctgagc tgaactgggc tgagttgaac   50

<210> 104
<211> 50
<212> DNA
<213> Homo sapiens

<400> 104
actaacaggc tgaactgggc tgggcaactg gactgaggtg gatggagctg   50

<210> 105
<211> 50
<212> DNA
<213> Homo sapiens

<400> 105
aaactgggtt tggctgggct gggccaactg gactgaggtg gatggagctg   50

<210> 106
<211> 50
<212> DNA
<213> Homo sapiens

<400> 106
ctgagttgaa ctgggttgag ctgagctgag ctgagctggg ctaagttgca   50

<210> 107
<211> 50
<212> DNA
<213> Homo sapiens

<400> 107
ctgagttgaa ctgggttgag ctgaggagga ctaggctggg tgagtgacct   50

<210> 108
<211> 50
<212> DNA
<213> Homo sapiens

<400> 108
tttgggctaa actgggtgag ctggggagga ctaggctggg tgagtgacct   50